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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,033	01/16/2001	Yang Gao	10508/998RSS366	4236

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EXAMINER	
JACKSON, JAKIEDA R	

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/761,033	GAO, YANG	
	Examiner	Art Unit	
	Jakieda R Jackson	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *September 17, 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28,29,31-35,38,39 and 41-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28,29,31-35,38,39, and 41-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 17, 2004 has been entered. **Claims 28-29, 31-35, 38-39 and 41-45** are now pending in the present application.

Response to Declaration Under 37CFR 1.131

2. Applicant stated that the supporting attachments have been received by mailed however, the supporting attachments have been received via facsimile for examination purposes, but an official copy is required.

3. The declaration filed on September 17, 2004 under 37 CFR 1.131 has been considered, but is ineffective to overcome the Oshikiri et al. reference.

4. The evidence submitted is insufficient to establish applicant's alleged actual reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of the Oshikiri et al. reference. The applicant did not provide a statement supporting when the application was reduced to practice.

5. The declaration submitted by the applicant does not show reduction to practice since Exhibit A, (entered in the Rockwell Semiconductor Systems, Inc. Disclosure Database on September 1, 1998 proceeded by numerous revisions), only shows the revision history, but fails to show reduction of practice prior to the Oshikiri et al. reference. The examiner notes that it seems that the applicant may have been adding new concepts to the invention due to the numerous revisions.

6. The evidence submitted is insufficient to establish diligence from a date prior to the date of reduction to practice of the Oshikiri et al. reference to either a constructive reduction to practice or an actual reduction to practice.

7. Therefore, since applicant did not at least establish diligence from comception to the actual reduction of practice, the declaration is insufficient to overcome the Oshikiri et al. reference, which will not be dismissed.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. **Claims 28-29 and 38-39** are rejected under 35 U.S.C. 102(e) as being anticipated by Oshikiri et al. (U.S. Patent No. 6,470,310), hereinafter referenced as Oshikiri.

Regarding **claims 28 and 38**, Oshikiri discloses a method and an encoder for encoding a speech signal (column 1, lines 11-15), said method and encoder comprising:

processing (process) said speech signal (speech signal) to generate a plurality of frames (plurality of frames), wherein each of said plurality frames includes a plurality a subframes (plurality of subframes; column 3, lines 64 –66);

coding a previous subframe of said plurality of subframes (encoding a plurality of subframes; column 4, lines 14-20) using Code-Excited Linear Prediction (CELP; column 1, lines 3-25) to generate a previous excitation signal (past excitation signal; column 8, lines 29-32); and

applying short term enhancement (column 5, lines 25-32) using said previous excitation signal (previous subframe) to enhance a current excitation signal for a current subframe (present subframe; column 5, line 65 – column 6, line 2).

Regarding **claims 29 and 39**, Oshikiri discloses a method and an encoder wherein said short term enhancement (subframe is short) is achieved by using several pulses (pitch period of subframes) from said previous exciation signal (previous subframe), to generate one or more short term enhancement pulses based on short term correlation (correlation; column 3, lines 11-15 and column 7, lines 18-39).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. **Claims 31, 33-35, 41 and 43-45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshikiri in view of Akamine et al. (U.S. Patent No. 5,265,167), hereinafter referenced as Akamine.

Regarding **claims 31 and 41**, Oshikiri discloses a method and an encoder for encoding a speech signal (column 1, lines 11-15), but lacks the method and encoder wherein said short term enhancement is achieved by weighting said previous excitation

signal by a current weighting filter to estimate correlation peaks at a distance.

Akamine discloses the method and encoder wherein said short term enhancement is achieved by weighting said previous excitation signal (excitation signal generator; figure 19, element 17) by a current weighting filter (weighting filter; figure 19, elements 51 and 52), to estimate correlation peaks at a distance.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oshikiri's invention such that it weighs the previous excitation signal by a current weighting filter, to reduce that amount of calculations required for coding the pulse train of the excitation signal while maintaining the performance (column 19, lines 10-14).

Regarding **claims 33 and 43**, Oshikiri discloses a method and an encoder for encoding a speech signal, but lacks the method wherein said current excitation signal pattern is constructed using the recited equation.

Akamine does not specifically disclose the method wherein said current excitation signal pattern is constructed using the recited equation. However, these formulas are well-known obvious variants of Akamine's equation 37 (column 14, line 61 – column 15, line 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oshikiri's invention such that it discloses the recited equation, to decode and compress a signal with high efficiency and to maintain a low transfer bit rate based on a train of excitation pulses (column 1, lines 10-16).

Regarding **claims 34 and 44**, Oshikiri discloses a method and an encoder for encoding a speech signal, but lacks the method wherein gains and distances are calculated by maximizing correlations of previous excitation signals in a weighted speech domain.

Akamine discloses a method wherein gains (gain) and distances (length; column 14, lines 61-68) are calculated by maximizing correlations (column 21, lines 23-32) of previous excitation signals (previous frame) in a weighted speech domain (column 3, lines 14-20 with column 12, lines 34-44), to reduce the amount of calculations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oshikiri's invention such that the gains and distances are calculated by maximizing correlations of previous excitation signals in a weighted speech domain, to provide a speech coding apparatus capable of providing high-quality synthesized speech at a low transfer rate (column 4, lines 24-27).

Regarding **claims 35 and 45**, Oshikiri discloses a method and an encoder for encoding a speech signal, but lacks the method wherein short term enhanced excitation is generated by performing a convolution operation $P(n)$ with said previous excitation signal.

Akamine discloses the method wherein short term short term enhanced excitation (figure 19 with pulse train approximately ½; column 19, lines 8-14) is generated by performing a convolution operation $P(n)$ (convolution sum) with said previous excitation signal (previous frame; column 9, line 56 – column 10, line 6 and column 19, lines 53-63), to calculate the perceptional-weighted error signal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oshikiri's invention such that it generates short term enhancement pulses by performing a convolution operation, to reduce the amount of calculations needed, which allows the practical use of the device to be further facilitated and efficient (column 19, lines 63-68).

Regarding **claims 36 and 46**, Oshikiri discloses a method and an encoder for encoding a speech signal, but lacks the method wherein the short term enhancement utilizes pitch lag information.

Akamine discloses the method wherein the short term enhancement (column 25, lines 52-55) utilizes pitch lag information (column 30, lines 21-24 and column 31, lines 6-14), to reduce that amount of calculations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oshikiri's invention such that the short term enhancement utilizes pitch lag information, to reduce the amount of calculations needed, which allows the practical use of the device to be further facilitated and efficient (column 19, lines 63-68).

12. **Claims 31, 33-35, 41 and 43-45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshikiri in view of Akamine et al., as applied to claim 31 above, in further view of McDonough et al. (U.S. Patent No. 5,926,786), hereinafter referenced as McDonough.

Regarding **claims 32 and 42**, Oshikiri in view of Akamine discloses a method and an encoder for encoding a speech signal, but lacks specifically teaching wherein said short term enhancement determines less than five peaks and gains per each sub-frame from said previous excitation signal.

McDonough discloses a speech compression system wherein said short term enhancement (column 12, lines 19-21) determines less than five (2.0) peaks (pitch lag) and gains (pitch gain) per each sub-frame from said previous excitation signal (column 26, lines 1-7), to allow computational savings to be achieved.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Oshikiri in combination with Akamine's method wherein said short term enhancement determines less than five peaks and gains per each sub-frame from said previous excitation signal, in order to minimize the mean square errors in each pitch subframe (column 25, lines 62-64), to prevent mathematical constraints (column 3, lines 30-46).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Benyassine et al. (U.S. Patent No. 6,636,829) discloses a speech communication system ad method for handling lost frames.
- Kleijn (U.S. Patent No. 6,169,970) discloses a generalized analysis-by-synthesis speech coding method and apparatus.
- Jacobs et al. (U.S. Patent No. 5,778,338) discloses a variable rate vocoder.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jakieda R Jackson whose telephone number is 703.305.5593. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703. 305.4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 28, 2004
JRJ

SUSAN MCFADDEN
PRIMARY EXAMINER